

PATENT ABSTRACTS OF JAPAN

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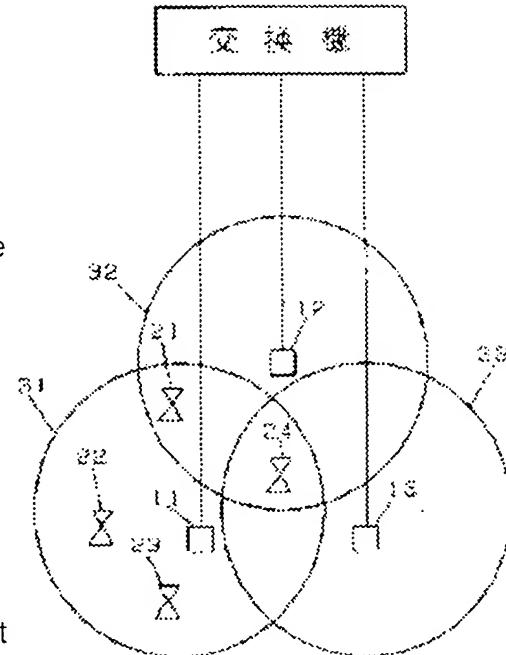
(22) Date of filing : 08.10.1992 (72) Inventor : MARUYAMA OSAMU

(54) RADIO CONTROL METHOD

(57) Abstract:

PURPOSE: To avoid trouble of it that a mobile station cannot confirm there is no idle information channel (TCH) before the mobile does not send a link channel establishment request message and receive a link channel allocation reject message by devising the mobile radio communication system that a base station always sends information representing the operating state of the information channels to the mobile station.

CONSTITUTION: A mobile station 24 confirms information representing information channel (TCH) slot operating state set in an option area of a restriction information notice message sent in advance by a base station (e.g. 12) whose radio communication state is best through a notice channel (BCCH) and makes call or position registration to the base station 12 when an idle TCH slot is available. When all the TCH slots are busy, the mobile station 24 seeks a base station (e.g. 13) whose communication state is better. The sequence above is repetitively executed.



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CLAIMS

[Claim(s)]

[Claim 1] When all the information-channel (TCH) slots of a certain base station are already using it, By setting up the information on the purport which all information-channel slots are using for the option area of the regulation information information message which the base station has sent out by the information channel (BCCH) A mobile station to this base station dispatch or before carrying out location registration and transmitting a link channel establishment demand message by the channel (SCCH) for individual cells The radio control approach which avoids this base station, transmits a link channel establishment demand message to other base stations as for which the information-channel slot is vacant, and is characterized by dispatch or carrying out location registration.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This inventions are mobile radio communication system, such as a land mobile radiotelephone, and relate to the radio control approach at the time of a mobile station performing dispatch and location registration to the base station which manages the mobile station in a wireless zone and performs call processing of dispatch and arrival.

[0002]

[Description of the Prior Art] Drawing 3 is the example of arrangement of a mobile station and a base station in mobile radio communication system. The inside 11, 12, and 13 of drawing is the wireless zone where a mobile station covers a base station, and 21, 22, 23 and 24, and base stations 11, 12, and 13 cover 31, 32, and 33 respectively.

[0003] For example, if the mobile station 24 which is a certain land mobile radiotelephone switches on a power source, first, a radio condition will be the best, for example, will look for the slot which a base station 11 sends out, and information will be received to the timing to which the information channel (BBCH) in it is sent out. And if the contents of the information message (a radio-channel information message, a system-information information message, a regulation information information message, option information information message) are checked, a link channel establishment demand message is transmitted by the channel (SSCH) for individual cells and a link channel allocation message is received from a base station 11, a location registration demand message will be transmitted by FACCH in an information channel (TCH), and location registration will be performed. Thereby, the location registration area in which this mobile station is located is recognized. And if a link channel establishment demand message is transmitted by the channel (SCCH) for individual cells and a link channel allocation message is received from a base station 11 when sending, it will send by transmitting a call setup message by FACCH in an information channel (TCH).

[0004] When not sending, a call-in message, information reception directions, etc. are received to the timing to which the simultaneous call channel (PCH) per [which is performed all at once by all base stations in said registered location registration area] call is sent out.

[0005] And when the first link channel establishment demand message is transmitted, while all the information-channel (TCH) slot busy conditions of a base station 11 are using it, as for a base station 11, a link channel allocation refusal message is transmitted. And a mobile station receives this message and a radio condition looks for the slot which a base station 12 is [a slot / it] good for example, sends out to the 2nd. And the same procedure as receiving the first base station 11 is taken also about this base station 12. Hereafter, repeating this sequence is continued.

[0006]

[Problem(s) to be Solved by the Invention] However, by the above-mentioned conventional approach, while all the slots of the base station 11 as mentioned above where a radio condition is the best are using it, after checking that a mobile station transmits a link channel establishment demand message to a base station 11 by SCCH, as a result, receive a link channel allocation refusal message, and all slots are using

it once, a radio condition looks for the slot which the good base station 12 sends out to the 2nd. Therefore, although all slots are using it, a link channel establishment demand message is transmitted once, and it does not become that there is nothing, but the unnecessary transmitting processing to the base station 11 of a mobile station 24 occurs.

[0007] Moreover, from this, it checked that all the information-channel (TCH) slots of a base station 11 were using it, and there were problems, like dispatch or a sequence until it carries out location registration takes time amount too much to the base station 12 where a radio condition is good to the 2nd.

[0008] This invention solves the above-mentioned conventional problem, and it aims at providing other base stations 12 with dispatch or the radio control approach that time amount until it carries out location registration can be decreased while it loses the unnecessary transmitting processing to the base station which all information-channel (TCH) slots are already using from a mobile station.

[0009]

[Means for Solving the Problem] In order that this invention may solve the above-mentioned purpose, when all the information-channel (TCH) slots of a certain base station are already using it, By setting up the information on the purport which all information-channel slots are using for the option area of the regulation information message which the base station has sent out by the information channel (BCCH) A mobile station to this base station dispatch or before carrying out location registration and transmitting a link channel establishment demand message by the channel (SCCH) for individual cells. This base station is avoided, a link channel establishment demand message is transmitted to other base stations as for which the information-channel slot is vacant, and it is characterized by dispatch or carrying out location registration.

[0010]

[Function] therefore, other base stations as for which the mobile station could check this information, without transmitting a link channel establishment demand message to this base station, and the information-channel (TCH) slot is vacant since a base station can send out beforehand the information on the purport which all information-channel (TCH) slots are using according to invention -- dispatch -- or location registration can be carried out. Therefore, the unnecessary transmitting processing to a base station in use [all information-channel (TCH) slots] can be lost, and the time amount to dispatch or location registration can be decreased.

[0011]

[Example] The example of this invention is explained using drawing 1 - drawing 4.

[0012] In drawing 1 and drawing 2, the mobile station 24 which is a certain land mobile radiotelephone will receive information to (2) and the timing to which the information channel (BCCH) in it is sent out in search of (1) and the TCH slot to which it is the best, for example, a base station 11 sends out a radio condition first, if a power source is switched on. And the contents of the regulation information message are judged among information messages (3). If information on a purport with the information-channel (TCH) slot as for which the base station 11 is vacant in the option area of a regulation information message as shown in drawing 4 at this time is set up (7), as for a mobile station, this will be checked immediately. Furthermore, a mobile station can transmit a link channel establishment demand message by the channel (SCCH) for individual cells, can surely receive a link channel allocation message from a base station 11, and performs location registration (4). And if a link channel establishment demand message is transmitted by the channel (SCCH) for individual cells and it receives a link channel allocation message from a base station 11 in sending, it can send (5).

[0013] However, if the base station 11 has set up information on the purport which all information-channel (TCH) slots are using for said option area (6), the mobile station 24 which checked this immediately will receive information to the timing to which the 2nd (2) and information channel (BCCH) in it are sent out in search of the slot which the base station 12 where a radio condition is good sends out at this time. And the contents of the regulation information message are judged among information messages from this 2nd base station 12 (3). Then, if this 2nd base station 12 is making a setup (7) information on the purport which has a vacant information-channel (TCH) slot in the

option area of the regulation information information message of drawing 4, as for a mobile station, this will be checked immediately. And a mobile station can transmit a link channel establishment demand message by the channel (SCCH) for individual cells, can surely receive a link channel allocation message from a base station 12, and performs location registration (4). And if a link channel establishment demand message is transmitted by the channel (SCCH) for individual cells and it receives a link channel allocation message from this 2nd base station 12 in sending, it can send (5).

[0014] However, if information on a purport that all information-channel (TCH) slots are also using this 2nd base station 12 for said option area is set up (6), the mobile station 24 which checked that information immediately will receive information to the timing to which the 3rd (2) and information channel (BCCH) in it are sent out in search of the slot which the base station 13 where a radio condition is good sends out at this time.

[0015] This sequence is repeated and carried out about the base station of the 4th, the 5th, and -- below.

[0016]

[Effect of the Invention] This invention has the effectiveness taken below so that more clearly than the above-mentioned example.

[0017] the base station for which an information-channel slot is not using all next in the base station where a radio condition is good while all the information-channel slots of the base station where a radio condition is the best are using it, since this information can be checked immediately, without a mobile station transmitting a link channel establishment demand message to this base station since a base station can send out beforehand the information on the purport which all information-channel (TCH) slots are using -- dispatch -- or location registration can carry out. Therefore, unnecessary transmitting processing of a link channel establishment demand message can be lost. Moreover, the time amount to dispatch or location registration can be decreased by losing this transmitting processing.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The processing flow Fig. of the mobile station in one example of this invention

[Drawing 2] The processing flow Fig. of the base station in one example of this invention

[Drawing 3] Drawing showing the example of arrangement of a mobile station and a base station in a mobile station radio communications system

[Drawing 4] The bit pattern Fig. in a regulation information information message

[Description of Notations]

11, 12, 13 Base station

21, 22, 23, 24 Mobile station

31, 32, 33 Wireless zone

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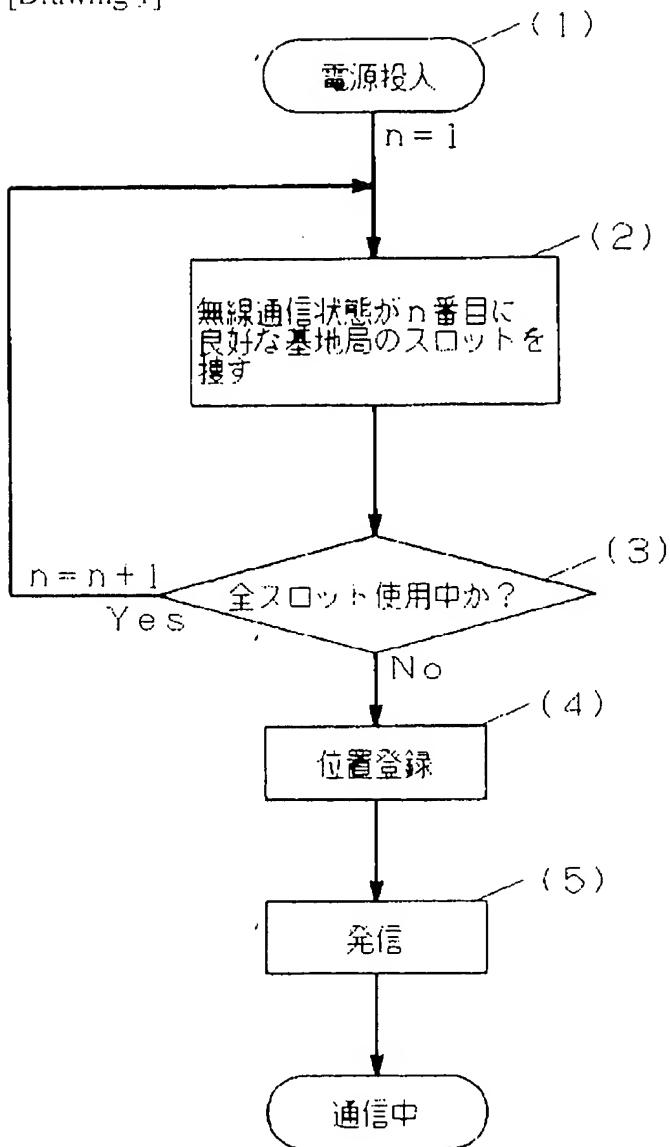
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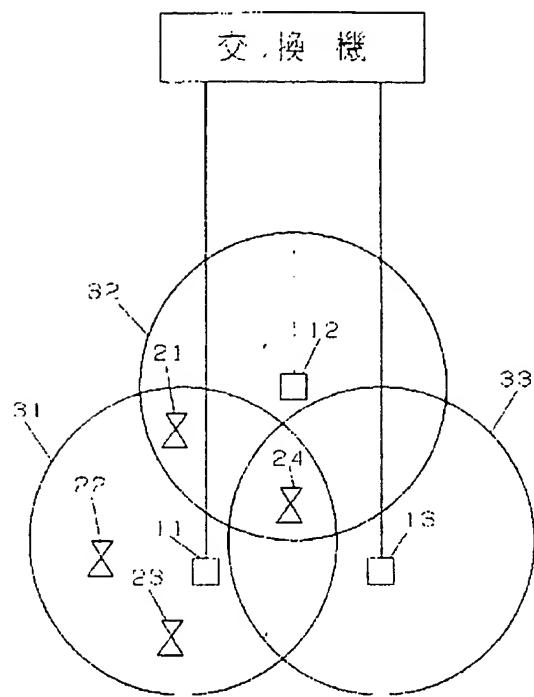
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DRAWINGS

[Drawing 1]



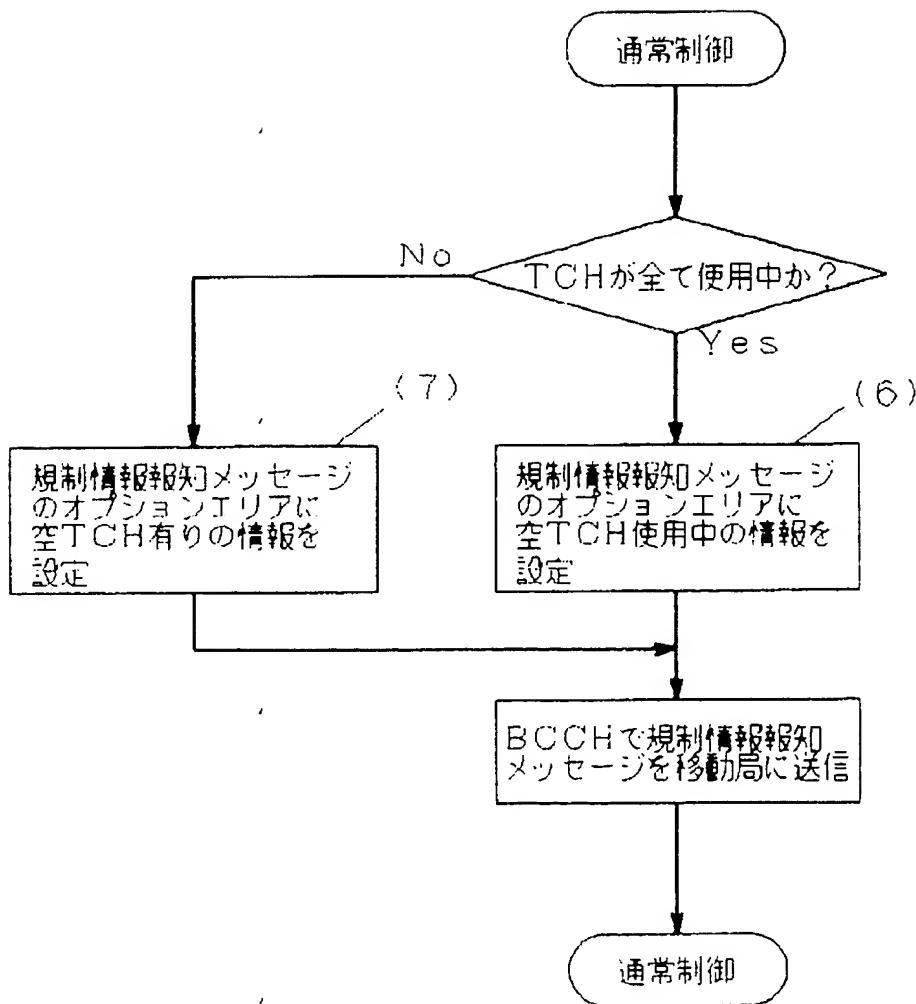
[Drawing 3]



[Drawing 4]

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4	CS状態表示							
5	オプション							
6	オプション							
7	排列リスト番号	報知メッセージ状態番号2		オプション				
8	報知受信指示							

[Drawing 2]



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